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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|---------------------|------------------|
| 10/023,152 | 12/17/2001 | Xiaoning Nie | L&L-I0173 | 3156 |
| 24131 | 7590 | 03/09/2006 | EXAMINER | |
| LERNER GREENBERG STEMER LLP | | | ROBERTS, BRIAN S | |
| P O BOX 2480 | | | ART UNIT | |
| HOLLYWOOD, FL 33022-2480 | | | PAPER NUMBER | |
| | | | 2662 | |

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/023,152 | | NIE, XIAONING | |
| | Examiner | | Art Unit | |
| | Brian Roberts | | 2662 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7-14 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's amendment filed 12/23/2005 is acknowledged.
- Claims 1-14 remain pending.

Claim Objections

1. Claims 9 and 10 are objected to because of the following informalities: The network node according to claim 8, is not selected from a group consisting of a router, gateway, switch, bridge or hub but rather can be embodied in a group consisting of a router, gateway, switch, bridge or hub. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 8, 11-12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kohzuki et al. (US 6912225)

- In reference to claim 1

Kohzuki et al. teaches a method that includes:

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- Determining a current buffer memory fill level of a queue of a network node and thereby obtaining a determined queue length (current buffer memory fill level) (column 11 lines 49-67)
- Comparing the determined current buffer memory fill level with a pre-set threshold for a buffer memory fill level (column 11 lines 49-67)
- Assigning a scheduled transmission time (output time) at which a data packet that is located in the queue will be output from the network node, in dependence on a result of the comparing step (column 11 lines 49-67)

- In reference to claim 8

In Figure 1, Kohzuki et al. teaches a node that includes:

- At least one priority queue (100) with a buffer memory for temporarily storing data packets;
- Determining means for determining a current fill level of the buffer memory and thereby obtaining a determined current fill level (column 11 lines 49-67)
- A control device for controlling an output of a data packet in dependence on the determined current fill level of the buffer memory (column 11 lines 49-67) configured to:
 - Determine a current buffer memory fill level of a queue of a network node and thereby obtaining a determined queue length (current buffer memory fill level) (column 11 lines 49-67)

- Compare the determined current buffer memory fill level with a pre-set threshold for a buffer memory fill level (column 11 lines 49-67)
- Assign a scheduled transmission time (output time) at which a data packet that is located in the queue will be output from the network node, in dependence on a result of the comparing step (column 11 lines 49-67)

- In reference to claim 11-12

In Figures 1 and 2, Kohzuki et al. teaches a system for use in a communication network that includes a plurality of nodes where each node includes:

- At least one priority queue (100) with a buffer memory for temporarily storing data packets;
- Determining means for determining a current fill level of the buffer memory and thereby obtaining a determined current fill level (column 11 lines 49-67)
- A control device for controlling an output of a data packet in dependence on the determined current fill level of the buffer memory (column 11 lines 49-67) configured to:
 - Determine a current buffer memory fill level of a queue of a network node and thereby obtaining a determined queue length (current buffer memory fill level) (column 11 lines 49-67)
 - Compare the determined current buffer memory fill level with a pre-set threshold for a buffer memory fill level (column 11 lines 49-67)

- Assign a scheduled transmission time (output time) at which a data packet that is located in the queue will be output from the network node, in dependence on a result of the comparing step (column 11 lines 49-67)

- In reference to claim 14

Kohzuki et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 1, Kohzuki et al. further teaches:

- The network node has an output for outputting the data packet
- The control device of each one of said plurality of said network nodes uses a given maximum bit rate that is defined at the output of the node (column 11 lines 49-67)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohzuki et al. (US 6912225) in view of Caldara et al. (US 5822540)

- In reference to claim 7

Kohzuki et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 1, Kohzuki et al. further teaches a packet buffer (10) with a finite total capacity and where a buffer overflow results in the loss of data.

Kohzuki et al. does not teach discarding data packets to be assigned if the buffer memory fill level is greater than an upper limit.

In Figures 1 and 2, Caldara et al. teaches setting a threshold (upper limit) and discarding cells if the number of cells in a buffer exceeds the threshold. (column 4 lines 6-26)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Kohzuki et al. to include discarding data packets if the buffer memory fill level is greater than a threshold (upper limit) as taught by Caldara et al. because it would prevent the buffer from overflowing and unacceptably losing data.

- In reference to claim 13

Kohzuki et al. teaches a system and method that covers substantially all limitations of the parent claim. In Figure 1, Kohzuki et al. further teaches a packet buffer (10) with a finite total capacity and where a buffer overflow results in the loss of data.

Kohzuki et al. does not teach discarding data packets to be assigned if the buffer memory fill level is greater than an upper limit.

In Figures 1 and 2, Caldara et al. teaches setting a threshold (upper limit) and discarding cells if the number of cells in a buffer exceeds the threshold. (column 4 lines

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6-26)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Kohzuki et al. to include discarding data packets if the buffer memory fill level is greater than a threshold (upper limit) as taught by Caldara et al. because it would prevent the buffer from overflowing and unacceptably losing data.

6. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohzuki et al. (US 6912225) in view of Raj et al. (US 6628649)

- In reference to claim 9-10

Kohzuki et al. teaches a system and method that covers substantially all limitations of the parent claim

Kohzuki et al. does not explicitly teach the network node being a router, gateway, switch, bridge, or hub.

Raj et al. teaches a communication network that includes such communication devices as routers, gateways, switches, bridges, and hubs to transfer data such as voice, video, computer application data across the network. (column 1 lines 4-25)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the system of Kohzuki et al. in communication devices such as routers, gateways, switches, bridges, and hubs as taught by Raj et al. because it would improve the efficient use of network resources and allow data packets to be

efficiently transferred from a source node to a destination node over a communications network.

Allowable Subject Matter

7. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- In reference to claim 2

Claim 2 would be allowed because the prior record fails to teach or fairly suggest in an nth cycle, in the assigning step, determining the output time $T_a(n)$ in accordance with $T_a(n) = T_s(n) + L/R$, where:

- $T_s(n)$ is a reference time allocated to the nth cycle
- L is a packet length of the data packet to be assigned
- R is a bit rate at an output of the network node and the value of R depends on the result of the comparing step

- In reference to claims 3-6

Claims 3-6 would be allowed because they depend from claim 2.

Response to Arguments

8. Applicant's arguments with have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

- Bryn et al. (US 5533020) teaches an ATM cell scheduler.
- Delp et al. (US 5844890) teaches a communication cell scheduler and scheduling method for providing proportional use of network bandwidth.
- Delp et al. (US 6028843) teaches an earliest deadline first communications scheduler and scheduling method for transmitting earliest deadline cells first.
- Delp et al. (US 6477168) teaches a cell/frame scheduling method and communications cell/frame scheduler.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BSR
02/28/2006



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